Ananta Krishnan B

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Education

Vellore Institute of Technology Aug 2023 - May 2027

Bachelor of Technology in Computer Science and Engineering *CGPA: 8.99*

Achievements

Pentathon Finalists | *NCIIPC-AICTE Cybersecurity Competition*

- Led the team to secure **33rd place** out of **8000+ participants** in the national-level cybersecurity **CTF (Capture The Flag) challenge** competition.
- Qualified for the final round in **New Delhi**, which involved **Vulnerability Assessment and Penetration Testing (VAPT)** and achieved **5th** place in the second round.

Experience

Payment Gateway API | *Rust Developer* | *Freelance* Dec 2024 – Jan 2025

- Rewrote a popular payment gateway's **Database Query API** using **Axum** and **Redis caching** with test-driven workflow, and benchmarked performance against the production-grade Haskell implementation.
- Engineered a domain-specific language (DSL) leveraging **sqlx**, eradicating hardcoded queries and elevating code maintainability by **40%**, streamlining future query additions to the API
- Re-designed the API with **Diesel** and **SeaORM** for performance comparison, achieving **sub-100 microsecond** query execution.
- Conducted in-depth performance testing on 5+ API versions with **Locust**, identifying bottlenecks and improving throughput by **25%**.

Zvia Tech | *Front-end Developer* | *Freelance* Sep 2024 – Dec 2024

- Developed the front-end for an **Enterprise Resource Planning (ERP) platform** using **Next.js** with sales visualization and logging.
- Implemented **10+** CRUD forms and added custom client-side query validation with connection to the backend using more than 20 **axios** client queries.
- Incorporated **Storybook** for component testing, enhancing reusability and debugging efficiency by **50%.**

Projects

Rusty rAVen | *Rust, raylib, libavformat, FFT, PipeWire (planned)* Sep 2024

- Developed a **real-time audio visualizer** using raylib, achieving **60+ FPS** on mid-range hardware.
- Optimized a **custom Fast Fourier Transform (FFT)**, reducing processing latency by **35%**.
- Integrated **libavformat** for metadata extraction, improving parsing speed by **20%**.
- Extended compatibility with **PipeWire, ALSA, and PulseAudio** to ensure compatibility across Linux audio back-ends.

Anvilock | *C, libwayland, libpam, libwayland-egl, glesv2* Oct 2024

- Built a **secure session locker** for Wayland compositors, featuring **fast authentication** via PAM.
- Optimized **EGL rendering**, reducing frame rendering overhead by **30%**.
- Integrated **ext-session-lock-v1** protocol for seamless integration with **3+** general-purpose compositors.
- Made a **highly configurable TOML-based settings system** with **4+** customizable fields, enabling rapid customization.

Veriscan | *Python, scikit-learn, Kivy* Sep 2023

- Built a Python mobile application to detect fake social media accounts using **Kivy** framework for UI and **scikit-learn** module for ML algorithms for Smart India Hackathon 2023.
- Curated high-quality datasets and ML models, achieving **97%** accuracy in detecting fake social media accounts.

Technical Skills

Programming Languages: Rust, C, C++, Python, Bash, Java, TypeScript, JavaScript, Dart, Go
Frameworks & Libraries: Axum, Diesel, SeaORM, sqlx, Redis, Next.js, Astro, TailwindCSS, Flutter, React Native, Firebase, ReactJS, libwayland, Raylib
Databases: MySQL, PostgreSQL, Sqlite
Development Tools: Git, Github, Shell Scripting, Neovim, VS Code, Linux, GCC, CMake, Node.js, Docker, Vercel, Hoppscotch